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K. Cobb
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): DICELO et al

Examiner: M. BUTLER

Serial No.: 08/241,109

Art Unit: 3206

Filed: May 11, 1994

For: A PROCESS FOR THE MANUFACTURE OF METAL TUBES

Raychem
Intellectual Prop. Dept.
Mail Stop 120/6600
300 Constitution Drive
Menlo Park, CA 94025-
1164TO: Assistant Commissioner of Patents and Trademarks
Washington, D.C.

APPOINTMENT/ASSOCIATE POWER OF ATTORNEY

Sir:

The undersigned, Herbert G. Burkard, Reg. No. 24,500, an attorney of record in the above captioned case does hereby appoint Jerry Cohen, Reg. No. 20,522, Edwin H. Paul, Reg. No. 31, 405 and Harvey Kaye, Reg. No. 18,978, Perkins, Smith & Cohen, LLP, One Beacon Street, Boston, MA 02108 [617-854-4000], as associate attorney with full power to have access to, inspect, and copy all files and documents related to and in connection with the above-referenced application and to represent applicants in written and oral communications to the PTO in behalf of Applicants. Please send all future correspondence in this case to Mr. Cohen.

Respectfully submitted,

DICELO et al, Applicant(s)

By: Herbert G. Burkard
Registration No. 24,500
Attorney for Applicant(s)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on 12/23/96

(Date of Deposit)

Tami O'Bryen

Name of applicant, assignee, or Registered Rep.

Signature

Date



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RULE 132 DECLARATION JOHN D. HARRISON

John D. Harrison of 13801 Hutchings Court, Watsonville, CA 95076-5333 states:

1. I am a co-inventor of the claimed subject matter of the above identified patent application, as well as the full application file history to date, references cited and the accompanying Response B. I have the education and experience shown in the attached copy of my c.v.

2. I am also familiar with circumstances leading to the claimed invention and its industrial utilization and industrial acceptance,

3. Raychem Corporation, the original assignee of the present application and Memry Corporation, assignee, have used the claimed process for TINEL brand microtubing made of superelastic and shape memory nickel titanium alloys (some with and some without added niobium and/or copper) available in these typical sizes

<u>O.D.</u>	<u>I.D.</u>	<u>Wall.</u>
0.017"	0.010"	.0035
0.035	0.028	.0035
0.060	0.040	.010

and many other standard and non-standard configurations as to dimensions and/or alloying composition (about 40, in all).

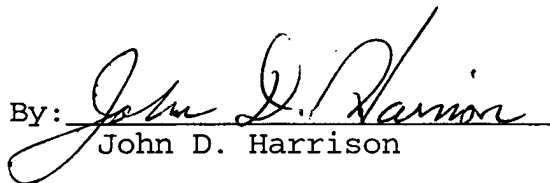
These are used in laporoscopic instruments and as fluid conduits and wire sheathing elements of various medical devices and are available in a length range from an inch to as long as 12 feet. The superelastic tube can be bent at body temperature as much as 8% and straightened on removal of stress repeatedly for thousands of usage cycles.

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These are all small diameter, thin walled products of remarkable stability and uniform surface and wall thickness, which have been sold and used in medical device markets. Many of the devices use the superelastic property to be remarkably bendable (and restorable) as used.

4. The products cited at par. 3 above are made within the scope of the application claims as applied to nickel titanium alloy.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United State Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

By: 
John D. Harrison

Dated: March 2, 1997

JOHN D. HARRISON, Sc.D.
13801 Hutchings Court
Watsonville, California 95076-5333
(408) 761-5509

PROFESSIONAL EXPERIENCE

October 1981 to Present

METALS CONSULTING as a proprietorship, then as *Jack Harrison Incorporated*; principal accounts:

- Memry Corporation - superelasticity and shape memory
- Raychem Corporation - shape-memory-related activities
- Quiedan Company - vineyard trellising systems

December 1966 to October 1981

RAYCHEM CORPORATION, Menlo Park, California

First metallurgist at the corporation; primary activity was the research and development which led to shape memory alloy products, most intimately involved with TiNi alloys, extensively involved with copper-base memory alloys; participated in initial laboratory development, first production, product introduction to customers, troubleshooting field problems; alloy development, thermomechanical processing, melting techniques from gas-fired crucibles through induction, electron beam and plasma; strategy for proprietary protection and patents; corporate-wide metals selection, corrosion studies, failure analysis.

September 1959 to November 1966

WESTINGHOUSE RESEARCH LABORATORIES
Churchill Borough, Pennsylvania

Research on solidification phenomena; special topics included interface morphology of ice during freezing from saline solutions, embrittlement in chromium-copper castings and seeded growth of selenium single crystals under high pressure.

August 1958 to August 1959

FRITZ-HABER-INSTITUT DER MAX-PLANK-GESELLSCHAFT
Berlin, Germany

Post-doctoral study of internal oxidation in alloys

EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Sc.D. Metallurgy, 1958

Thesis Advisor: Professor Carl Wagner

PENNSYLVANIA STATE UNIVERSITY

M.S. Metallurgy & Ensign, USNR 1953

B.S. Metallurgy 1952

MILITARY EXPERIENCE

July 1953 to July 1955

U.S. Navy, Ensign, then Lt. j.g.

USS LST 32

Home port: Naples, Italy

September 1949 to June 1953

NROTC Midshipman

LIST OF PUBLICATIONS

K.N.Melton & J.D.Harrison, "Corrosion of Ti-Ni Based Shape Memory Alloys," SMST-94, *Proceedings of the First International Conference on Shape Memory & Superelasticitic Technologies*, edited by Alan R. Pelton, Darel Hodgson and Tom Duerig (MIAS, Monterey, 1995) p 187-196

J.D.Harrison & D.E.Harrison, co-editors, Chap. 5 "Metals," *Electronic Materials & Processes Handbook*, second edition, editors C.A.Harper and R.M.Sampson (McGraw-Hill, New York, 1993), p 5.1-5.69.

J. D. Harrison, "Measurable Changes Concomitant with the Shape Memory Effect Transformation," *Engineering Aspects of Shape Memory Alloys*, editors T.W.Duerig, K.N.Melton, D.Stoeckel & C.M.Wayman (Butterworth, Boston, 1990) p 106-111.

C.M.Wayman & J.D.Harrison, "The Origins of the Shape Memory Effect," *JOM*, 41 no.9 26 (September 1989).

J.D.Harrison & D.E.Hodgson, "Use of TiNi in Mechanical and Electrical Connectors," *Shape Memory Effects in Alloys*, edited by A.J.Perkins. (Plenum Press, New York, 1975), p 517-523.

J.D.Harrison & D.E.Harrison, "Etch Pit Studies on Single Crystals of Hexagonal Selenium Grown from the Melt at High

Pressures," *The Physics of Selenium and Tellurium*, edited by W.C.Cooper (Pergamon Press, New York, 1969), p 115-134.

J.D.Harrison, "Seeded Growth of Selenium Crystals under High Pressure," *Journal of Applied Physics* **39** no.8 3672 (July 1968).

J.D.Harrison, "Measurement of Brine Droplet Migration in Ice," *Journal of Applied Physics* **36** 3811 (December 1965).

J.D.Harrison, "Solute Transpiration Pores in Ice," *Journal of Applied Physics* **36** 326 (January 1965).

J.D.Harrison & W.A.Tiller, "Ice Interface Morphology and Texture Developed during Freezing," *Journal of Applied Physics* **34** 3349 (November 1963).

J.D.Harrison & W.A.Tiller, "Controlled Freezing of Water," *Ice and Snow-Properties, Processes and Applications*, edited by W.D.Kingery (Technology Press, Cambridge, Massachusetts, 1963) p 215.

J.D.Harrison & W.A.Tiller, "The Controlled Solidification of Aqueous Solutions," *Desalination Research Conference-Proceedings, NAS-NRC Publication* **942** 312 (1963).

J.D.Harrison & W.A.Tiller, "Optimum Conditions for Zone Refining," *Trans. AIME* **221** 649 (June 1961).

J.D.Harrison & C.Wagner, "The Attack of Solid Alloys by Liquid Metals and Salt Melts," *Acta Met.* **7** 722 (November 1959).